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DEPARTMENT OF PSYCHOLOGY

BLIND MOBILITY:

PEOPLE, REQUIREMENTS, AND SOLUTIONS.

by

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Contents.

Title	Paragraphs	Pages
Part I.	3 - 9	1 - 3
Part II.	10 - 86	4 - 25
What is meant by 'independent mobility?	11 - 18	5 - 6
Who are the people for whom mobility can be a problem?	19 - 22	7 - 8
How do blind people differ from each other?	23 - 30	9 - 10
What are mobility hazards?	31 - 38	11
What are the existing means to help blind people to be mobile?	39 - 68	12 - 20
Why do blind people need to be trained in mobility?	59 - 72	21
Where is mobility training provided?	73 - 83	22 - 24
How are mobility instructors trained?	84 - 86	25
Appendix A. (Mobility Scale)	87 - 89	26 - 27
Appendix B. (Addresses)	- -	28

Blind Mobility: People, Requirements, and Solutions.

1. During recent years the overwhelming importance of mobility to blind people has been recognised, the problems involved have become clearer, the means available to deal with these problems have become more varied, and the costs involved in providing the means can be estimated very much more accurately. This document is presented in two parts: Part I is a short statement of the present position; this is expanded in Part II.

2. All paragraphs are numbered. Numbers shown in the left-hand margin refer to relevant paragraphs in other parts of the document.

Part I.

3. One of the obvious consequences of having little or no sight is that moving about by oneself is a much more difficult problem than for those who have sight. We know from common experience that blindness severely impairs mobility and we know from survey data something about the extent of that impairment. But we also know about the considerable extent to which some blind people have learned to get about by themselves. The choice of whether to be independently mobile or not, the length to which to take this independence, and the choice of aids and training methods must in the last resort be for the blind person. But one can only chose if there are things to chose from, and if one has knowledge about the factors involved.

4. The Problem. For a blind person who wants to move about by himself there are two major sources
31 - 37 of danger: injury to himself and losing his way. Potentially these dangers are present as much in
25 one's own home or neighbourhood as they are present in an unfamiliar town centre. Thus one simple way of stating the problem of blind mobility is to say that one seeks to reduce the risks of injury and of losing one's way.

39 - 68 5. Solutions. Blind people can reduce these
43 - 46 risks by learning to make use of their remaining
47 - 68 senses and by learning to use one or more of a
69 - 72 number of aids. Mobility Instructors (or officers) can help them in this learning process, making the learning itself less risky as well as quicker.

23 - 30 6. Blind people differ among themselves as much as any other group of people. Until it becomes possible to give them sight or the full equivalent of sight, one has to try to match blind people's individual preferences and abilities with a choice
39 - 68 of aids and training methods.

7. There are available now at least four aids to mobility and associated training methods:
47 - 68 short cane, guide-dog, long cane, and sonic aid. These aids and training methods themselves differ in the extent to which they provide direct protection against injury and the extent to which they help a blind person to find his way about.

8. The following statements may be said to sum up the present state of blind mobility:

a) A blind person can have full protection from injury as well as a high level of competence in finding his way about a complex, unfamiliar environment. To attain this high level of mobility a
24 blind person needs to be well motivated because he has to put a considerable amount of effort into acquiring and maintaining
48,53,58, 62 the necessary skills.

b) The bulk of the blind population can be brought much closer to the high level indicated above than they are at present: either by making their mobility safer and more comfortable, or by enabling them to deal with more situations than they do at present, or by doing both. This also requires some motivation on the part of the blind person concerned.

c) In order to make it possible for blind people to take advantage of present
47 - 68 possibilities one has to provide the aids
73 - 83 and the training facilities. Here qualified
69 - 71 instructors teach the necessary skills to the blind person and ensure that person's safety during training. Training is already
73 - 83 given at residential centres, non-residential centres and/or based on the blind person's
19 - 22 home. So far only a minority of those blind people who might benefit can do so, mainly because there are not enough mobility officers up and down the country.

9. Conclusions. It is therefore an appreciation of the needs of each blind person and of the possibilities of meeting these needs as well as the increased provision of mobility training facilities

which is essential at this point in time. In Part II the most important issues are discussed in the form of answers to the following questions:

What is meant by 'independent mobility' ?	(11 - 18)
Who are the people for whom mobility can be a problem ?	(19 - 22)
How do blind people differ from each other ?	(23 - 30)
What are mobility hazards ?	(31 - 38)
What are the existing means to help blind people to be mobile ?	(39 - 68)
Why do blind people need to be trained in mobility ?	(69 - 72)
Where is mobility training provided ?	(73 - 83)
How are mobility instructors trained ?	(84 - 86)

Part II.

Introduction.

10. In (6) and (7) above two major propositions were stated: that one had to match blind people's preferences and abilities with the aids and training methods available, and that there were at least four such aids and training methods. In Part II the major factors involved in helping a blind person to become independently mobile are outlined. This is done against a general background in which one seeks to explore alternative solutions in terms of what the blind person can gain in return for effort expended on his part and of those who provide services for the blind.

What is meant by 'Independent Mobility' ?

11. By independent mobility one means the ability of a blind person to get about without having to rely on a sighted guide. A recent survey indicated that about one third of the blind working population relied wholly on a sighted guide for all outside mobility. The other two thirds differed in the extent to which they rely on others.

12. It is obviously a blind person's right to chose whether he does or does not want tobe independently mobile, in what circumstances, and by how much he wants to be able to depend upon himself or others. The choice can be made easier for him by providing him with adequate information about the problems and the present day solutions.

13. Obstacle Avoidance & Orientation. For those who want to have at least a measure of independence,
47 - 68 existing aids and training methods can help in the two major problem areas: safety from injury and finding one's way;

14. Mobility 'scale'. Thus, the level of a blind person's mobility achievement is thought of
87 primarily in terms of the safety he can assure
88 himself of and in terms of the situations in which he moves about. At one end of the scale would be people who move about only within their homes and
31 - 37 put themselves at considerable risk even in that situation, while at the other end of the scale would be people who go anywhere without putting themselves at risk at all. In practice many blind people are satisfied with the ability to walk along familiar routes while incurring acceptable risks.

15. Difficult Task. We know from the observations of blind people as well as from physiological measures that independent mobility is a difficult task: there are anxieties as well as the need to concentrate,hence the frequently repeated
24 emphasis on the need for motivation. But again, this motivation can be encouraged in blind people

by being able to assure them of what they can gain by becoming mobile in the first place or by increasing their level of mobility in the second place.

16. Lonely Task. Independent mobility is not only difficult but it is also a rather lonely task. Unless he operates at a very high level, the blind pedestrian does not share many of the roadside experiences and diversions enjoyed by the sighted. One of the attractions of having a
52 - 55 guide dog is said to be the companionship between man and dog.

17. Gain of Independence. One needs to draw attention to the dangers, to the experienced stress, and to the possible loneliness in order to produce a balanced picture of blind mobility. On the other hand there is independence or at least a measure of it. To many blind people the attainment of at least a measure of independence in mobility is worth a great deal for all manner of reasons. A blind person has to rely on sighted help a good deal in any case and it is natural that he should want to reduce his sense of dependence.

18. Achievement. It is also important to appreciate the importance of the sense of achievement resulting from the attainment of independent mobility. This, as an instance of overcoming one severe consequence on one's disability, is almost certainly of very great importance to a good many blind people.

Who are the People for whom Mobility can be a Problem ?

19. All those registered blind people whose sight is so poor that it impairs their ability to get about by themselves. It is that section of the registered population who have less than 'guiding vision' and who have no other factors imposing severe limitation on their mobility.

20. User Population. Taking into account existing data on residual vision, age, and additional disabilities it may be helpful to think in the first instance in terms of something like 15-20% of the total registered population as constituting the potential user population. This is not deny the fact that almost any person on the register might benefit from some training, however brief, and basic: the limits suggested above serve to draw attention to those whose need is at present most clearly demonstrable.

21. Existing Blind. It is important to distinguish between the 'existing' blind and the 'newly' blinded in the present context. Overall rather less than two thirds of the existing blind are already mobile,
87 - 88 and some have attained very high levels of achievement. For many of the existing blind the role of mobility training is to improve upon present levels of safety, comfort, and confidence, and/or to extend the range of their activities. They will want to know just how much they can expect to gain in return for any effort they may want to put into training. The situation here is similar to that known in industry as conversion training, where the trainee may have to unlearn some old habits as well as acquiring some new skills.

22. Newly Blind. The newly blinded are in a different position. They have to convert from mobility skills dominated by vision to mobility skills dominated by the other senses. Without minimising the tremendous problems of adjustment facing a newly blinded person, it is nevertheless

true to say that it is for them that mobility training has brought about the most dramatic change over the last few years. It is now possible to assure a good many newly blinded people that they will be able to attain moderate
87, 88 levels of independent mobility within their home and immediate neighbourhood in a matter of weeks after being declared medically fit for such training after losing sight.

How do Blind People differ from each other ?

23. Sex, age, degree of residual vision, time of onset of blindness, and the presence of additional handicaps are the most obviously important differences as far as mobility is concerned. Intelligence and personality are also important factors, but less is known about their relevance to the acquisition of mobility.

8
11 24. Motivation. Some blind people are determined to become and remain as independently mobile as possible, while at the other extreme there are those who prefer to rely wholly on sighted guides.

88 25. Needs. Some blind people may only want to be independently mobile within their own homes or the area immediately around their homes. Others may want to be able to go anywhere at any time. For many blind people the ability to go to and from work, or to and from a local shopping area,
80 without having to ask for sighted help, is an important need.

31 - 37
47, 50
52, 55
56, 60
61, 64 26. Risks. Some blind people are clearly prepared to take very considerable risks in order to become and remain mobile, while others are only prepared to move when they can be quite certain of full protection against collisions, stumbles, and other dangers.

44, 45 27. Touch or Hearing. While most blind people make use of all their remaining senses in combination, there appear to be strong preferences for relying primarily on either touch or on hearing.

43 28. Conspicuity. Some blind people may not go out by themselves if they think that this makes them conspicuous, while others are much less worried by this aspect.

29. Amount of Information Required. Most blind people appear to be satisfied with a minimum of information necessary to give them a 'clear path' while some want to have more detailed knowledge about the situations in which they find themselves.

57, 67

30. Note: ideally one wants to take all these points into account when helping a blind person in chosing a particular mobility aid. For instance, if a person is highly motivated, has a need to be able to move about anywhere and at any time, and wants to have maximum protection, he is likely to produce the considerable effort necessary to enable him to meet these requirements. If he can be assured that the particular aid suggested will help him to attain his ends, it will make it easier for him to persevere.

87, 88

What are Mobility Hazards ?

31. It is useful to distinguish between objects at different levels of a person's body: e.g. an overhanging branch is dangerous to the head, it
45,61,68 could be detected by hearing or an electronic device, but cannot be detected by means of a cane used normally.

32. Collisions. Any object in his path is a potential hazard, whether stationary or mobile, e.g. a tree or another pedestrian.

33. Falls. These can be caused either by low obstacles such as toys on the floor or low railings in parks, or by holes in the pavement, unexpected kerbs, and the like.

34. Traffic. Crossing a street is still one of the major hazards.

35. Noise. Whether this is caused by machines, cars, or high winds, noise will make it difficult or impossible for the blind person to rely on many
45 of the uses to which he puts his hearing. Note however that traffic noise can also be utilised in a helpful manner.

36. Losing Oneself. Because suitable landmarks are much fewer for a blind person and because many situations are ambiguous, it is very easy for a blind person to lose his way. It is also relatively common for a blind person to lose orientation momentarily, e.g. facing the wrong direction in a room or at a street corner.

37. Snow on the ground. The 'blind man's fog' reduces cues available from both sound and touch. It also makes the ground itself treacherous.

38. Note: the aim of all aids and training methods
87, 88 is to enable a blind person to deal effectively with some or all of these dangers. Given resources and effort it is already possible to deal effectively with a good many of them.

What are the existing means to help blind people to be mobile ?

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47,52,56
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39. As well as their remaining senses, blind people use guide-dogs, short canes, long canes, and the sonic aid. For all but the short cane there are by now formalised training methods. Aids and training methods differ in the following respects:-

The protection afforded from injury.
The extent to which they enable a blind person to find his way about familiar and/or unfamiliar areas.
The extent to which they meet the
23 - 30 various preferences and abilities of blind people.
46,48 The extent to which training can be
53,58,62 provided at residential or non-residential
73 - 83 levels.
The length and complexity of the training.

40. Note 1. By now there is some aid and training method to meet almost every mobility need so that blind people can have a choice.

41. Note 2. Different situations may demand different aids so that a blind person may well want training in more than one method.

42. Note 3. Among those who teach and practice mobility there is a considerable measure of agreement on the universality of 'basic skills': drills and procedures which are fundamental and form a general baseline of knowledge, regardless

of the particular aid and training method preferred subsequently. It is knowledge of these basic skills which may well benefit more blind people than those described under 'potential user population'.

20

Remaining Senses.

43. For mobility purposes touch and hearing are the two most important ones, and blind people differ in the extent to which they are able to
27 use either and in their preference for relying on one or the other. An important consideration here is that the use of touch tends to make a
28 blind person conspicuous and different from sighted people, while hearing can be used to great advantage without making the user conspicuous.

44. Touch: in hands and feet, is used to explore objects and surfaces. It is also used to provide a measure of protection, as when the arm is held out to shield the face. Touch plays
47, 52 a major role in the use of all the existing aids:
56, 61 the canes and the handle of the guide dog are held in the hand and transmit information of various kinds, the sonic aid is either held in the hand or mounted on the forehead: the direction in which the beam is pointing is signalled by the positions of hand or head. Touch also plays a role when a blind person uses wind or sun to help him in orientation.

45. Hearing: is used primarily in two ways by blind people: 1) to listen for sounds around them, e.g. traffic noises acting as a warning signal or the sounds from a shop acting as a landmark, 2) to detect obstacles: many blind people use human echolocation to detect trees, lamposts, open doorways. This 'obstacle sense' is most effective for objects which extend
31 up to or are at head height. Hearing is the one distance receptor left to blind people and is of great importance.

46. Training: to make better use of the remaining senses is implicit in all forms of mobility training,
57 and explicit to a lesser extent particularly as far as obstacle sense is concerned.

Short Cane.

47. The most frequently seen aid to mobility is the 'white stick'. Originally this was simply an ordinary walking stick painted white. Nowadays it is still available in this form. There is also a lightweight collapsible version, varying from about 33-36 inches in length. The short cane is used as a 'bumper', as a means of support, and as a sign to others that the user is visually handicapped. The amount of direct protection and warning of obstacles it provides depends to some extent on the size of the user, the pace at which he walks, and the way in which the cane is held. In general
31 it can be said to protect legs and midbody but not the feet and head. If used optimally it provides warning of obstacles at leg and up to waist level. In general it does not protect feet and does not
32 help to prevent stumbles or falls due to low obstacles, holes in the ground, etc.

48. Training: in its use has not yet been formalised though it is given with varying degrees
73 - 83 of success in some schools and rehabilitation centres. It incorporates many of the principles formalised in long cane/orientation training.

49. Use. The short cane, in one form or another, is the most widely used mobility aid. Most users have had no training in its use.

50. Problems. These arise inevitably from the
31 - 37 limited protection provided by the cane. Because it is short relatively to a person's body size it covers less body area and provides less warning time. Careless use of a short cane can lead to hazards to both user and others.

51. Note. Work on a 'midi cane' and a simple training method is in progress. Thus may turn out to be of considerable benefit to those who for one reason or another do not benefit from training with a
56 'long cane'.

Guide Dogs

52. Guide Dogs have been used as an aid to the blind in the U.K. for 40 years. Dog and man are trained to work as a 'unit' with the dog responsible for ensuring the blind person's protection from injury as well as being able to follow learned routes. The blind person is however very definitely in charge of operations which should be considered as a result of very active partnership. This leads to full body protection and can lead to travel anywhere. It also provides a great deal of companionship and helps to overcome the 'loneliness' of the blind pedestrian.

73 - 83
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53. Training: is provided at one of four residential centres in courses lasting four weeks. Instruction and practice is given in the care and understanding of the dog. In general the instructor who has trained a unit at a centre also provides familiarisation training in a blind person's home area and subsequent follow-up service.

54. Use There are approximately 1,700 guide dog owners at present. Potential users have to be able to get on with dogs, be physically fit (if only to ensure adequate daily exercise for the dog), have

27, 34

adequate hearing, and in general have less than guiding vision.

55. Problems Some people simply do not seem to be able to get on with dogs. For those who meet all the requirements there is first of all the clear need to accept the responsibility of dog ownership. The other problem is what to do with the dog when it is not 'on duty' e.g. when the user is at work, goes to a theatre etc. By now many solutions to this particular problem

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have been produced by G.D.B.A. who provide kennels and runs as well as making suitable arrangements with employers before a blind person goes for training. The family or friends of the blind person frequently help as well to overcome this problem which need no longer be considered a significant limitation on guide-dog usage.

Long Cane/Orientation.

56. The long cane is a lightweight aluminium tube with a rounded crook at the top and a nylon tip at the end. Its length is tailored to the user's height and stride length. Roughly speaking the cane reaches the tip of the chestbone when held upright against the user's person. The primary reason for this length is to provide the user
32, 33 with warning of objects or sudden drops in the ground one stride ahead of him. In ordinary walking the cane is held at midbody position and moved in synchrony with the user's steps: with the left foot forward the tip explores the area on the right; as the right foot comes forward the tip is moved over to the left. The cane-tip moves through an arc which is effectively the width of the user's shoulder. In this way there is full protection and warning from groundlevel to waist; and since the majority of obstacles either rise from the ground, or drop away from it, the long cane properly handled does provide a very considerable degree of protection. There is of course no direct protection from obstacles
31,45,68 which start at higher levels, e.g. tailboards of lorries, big wing mirrors, overhanging bushes.

57. A whole training package goes with the
46 long-cane. This training includes sense-training drills for dealing with a wide range of commonly occurring situations, methods of learning routes,
56 etc. Thus, with the exception mentioned above, a blind person can attain high levels of safety in almost any situation.

73 - 83 58. Training. This is provided by qualified
85 instructors at both residential and non-residential levels. Roughly between 60-100 training hours, spread over four to twelve weeks, is normally required. A follow-up service is recommended.

59. Use. There is reason to assume that long-cane orientation training can benefit a very wide range of blind people, though it is almost certainly not suitable for everybody. There are fewer restrictions
59 than for the potential guide dog user population; one can terminate training at a wider range of achievement levels; and one can extend training to
79 attain higher levels subsequently.

31 - 37 60. Problems. To achieve full benefit the user has to be able to achieve a degree of motor co-ordination which is hard for some blind people. The length of the cane poses some problems when the cane is not in use, e.g. on buses, in restaurants, etc. (Introduction of a foldable cane will reduce these problems). Unskilled use of a long cane can lead to hazards for the user and others. Protection of the head area, which may be a problem for those with poor hearing, can be solved by the addition of a
68 headmounted version of the sonic aid.

Sonic Aid.

61. This is a handheld electronic device which emits a narrow beam of ultrasonic energy. Objects in the path of the beam reflect some of the transmitted energy and this is picked up by the device. The user hears a signal which varies in pitch with the distance of the object, and in loudness with the goodness of the reflector. The direction
44 of the object is indicated by the position of the hand. The size and shape of objects larger than the width of the beam can be inferred from the scanning pattern needed to encompass the object. The device operates on two ranges, approximately 10 and 20 feet. Potentially there is a great deal of information produced by the device and the user has to learn how to make use of this information. By employing an appropriate scanning pattern there can be effective and direct protection for the body area
31 between thighs and chest. Unexpected lower and higher objects present problems. This aid is suggested for travel in familiar rather than unfamiliar areas.

73 - 83 62. Training. The very small number of blind people who at present use the sonic aid for mobility purposes have had little or no formal training. Non-residential training by qualified instructors is just starting. Similar training could be provided at residential levels. For those with existing travel skills, something like 20-30 training hours may be a minimum requirement.

63. Use. At present one would suggest this aid
21 primarily to the existing blind, for those who
27, 44 prefer the use of hearing to that of touch, and who are quick at making inferences from a somewhat complex signal.

64. Problems. The complexity of the signal puts off some potential users; the use of any extra auditory input puts off others. In practice users learn to combine sounds from the device with natural

31 - 33 sounds. There are the risks of stumbles, falls, or head-collisions. The present cost of the device is £70.

67. Note. This is at present the only device
29 available which enables a blind person to 'look' at an object from a distance and, with learning, to be able to identify a wide range of objects. This quite apart from its use in mobility, makes the device an important item for blind people.

68. Headmounted Version. By detaching the transducers from the body of the device and mounting these on a headband such a version has been produced for field trials. In these trials the device was used to supplement the users' existing aids, i.e. long or short canes. The device
31 achieves head-protection as well as the opportunity for environment sensing.

Why do blind people need to be trained in mobility ?

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69. The majority of the existing and already mobile blind population have had no formal training. They acquired their skills over long periods of time and often in a hard way. Some have attained and maintained
87, 88 very high levels of mobility in this way.

70. Training has as its objective to achieve useful levels of mobility in as short a time as possible, in a safe setting, and as easy a manner as possible.

84 - 88 71. Mobility Instructors for guide dog, long cane, and sonic aid are sighted and have themselves undergone mobility training under the blindfold. They need to be sighted so that they can observe and control their trainee from a distance. Instructors fulfil three roles:

a) To teach the actual skills and procedures involved.
b) To tell the blind trainee how well or how badly he is doing, and how to correct his errors.
c) To ensure the safety of the blind trainee at all stages of the training so that the trainee can concentrate on the acquisition of the necessary skills until he is competent to ensure his own safety.

72. All training methods now in use are based on the experience of blind people and have been evolved in close and continuous collaboration with them.

Where is mobility training provided ?

73. Mobility training can be provided either at residential centres, non-residential centres, or
52 based on a blind person's home. Guide dog training is provided only at residential centres. Other forms of training can be provided at all three locations.

71 74. Much of mobility training is carried out on the basis that one instructor teaches one trainee at any one time, both on account of the actual teaching process and in order to ensure the safety of the trainee.

75. Mobility training takes place in indoor and outdoor situations which form a progression of
88 increasing complexity (as schematised on table 2.)

76. The factors which need to be considered when helping a blind person to decide whether to have training at a residential centre, a non-residential centre, or based on his own home include:

23 - 30
- The availability of any of these training facilities.
- The preference of the trainee.
- The merits of training on one's home ground.
- The need to have other forms of rehabilitation being given concomittantly.

77. The advantages of residentially based training are mainly that the trainee is in a group of other people under training and carries out this training away from his home area. This means that he is working in a setting where maximum emphasis is placed on encouraging him to persevere with the acquisition of the new skills.

78. The disadvantages of residential training arise from the same fact that the trainee is away from home: to ensure that the trainee can make use of his skill on returning home he has to have a relatively high 'passing-out' level from the

centre. There are the personal disadvantages of his having to be away from home.

79. The advantages of training based on a non-residential centre are that the instructors can still share common training facilities and training routes as in a residential centre, but that the trainee need not be away from home. One does not need to attain the same high 'passing-out' levels of achievement in the first place since it is easier to carry out 'follow-up' work, refresher courses,
87, 88 and proceed to higher levels of attainment subsequently.
59 Thus, one can for instance train a blind person to be proficient in his own neighbourhood for a start, allow him to perfect this skill for some months, and then give him more advanced training if he so requires.

80. The disadvantages of non-residential training are that the trainee returns to his home environment every day and may be subject to detrimental influences, however well-meant. Relatives may be reluctant to encourage the blind person, particularly during the early stages of training and if they themselves are worried about the increased independence aimed at during the training.

81. The advantages of home-based training are that the blind person learns his new skills in the area in which he may well want to exercise it most frequently and where improved mobility may meet the
25 most obvious need.

82. The disadvantages of home-based training are that the blind person is very much under the eyes of family and neighbours at all times and that he does not become part of a group of people sharing the same experience. There is also the problem that the instructor has to spend time on working out suitable training routes for each trainee and on travel between clients.

83. These are by no means all the pros and cons to be considered but the list may give some indication about the main problems. Ideally one would want to have an integrated service so that training can be provided to suit each individual case, and work started at one level can be continued to another if and when necessary. In general, newly

32 blinded people may well have their initial mobility training at a residential centre as part of their general rehabilitation training, while most of the
21 existing blind and the older newly blinded may want to train at or near their home.

N.B. At whatever level mobility training is provided the instructor will almost certainly require the use of a car. This is needed to take trainees to training areas and/or for the instructor to go the trainee's home area. This needs to be taken into account when costing the service.

How are mobility instructors trained ?

84. Instructors for guide-dog are trained by the Guide-Dog for the Blind Association at their four training centres at Exeter, Leamington Spa, Bolton, and Forfar. The instructors train both the dogs and the blind people. Further details can be obtained from G.D.B.A. (see Appendix B for address).

85. Instructors for long-cane/orientation are trained at the National Mobility Centre, Birmingham. It is hoped that this Centre will also take on instructor training for other aids.

86. N.M.C. offer a six-month course to people with no previous experience in work with the blind, and a three months course for those with previous experience. Further details can be obtained from N.M.C. (see Appendix B for address).

Appendix A.

87. Table 1 presents a list of criteria the attainment of which are considered to ensure maximum protection from bodily injury. Regardless of the type of aid used, these are attributes of performance which some blind people can achieve and which are the explicit aims of most training methods. Items 1-7 may be thought of as making up the specific sequence of actions required to traverse successive blocks making up a route, see fig 1 for explanation. Items 8-12 are more general attributes.

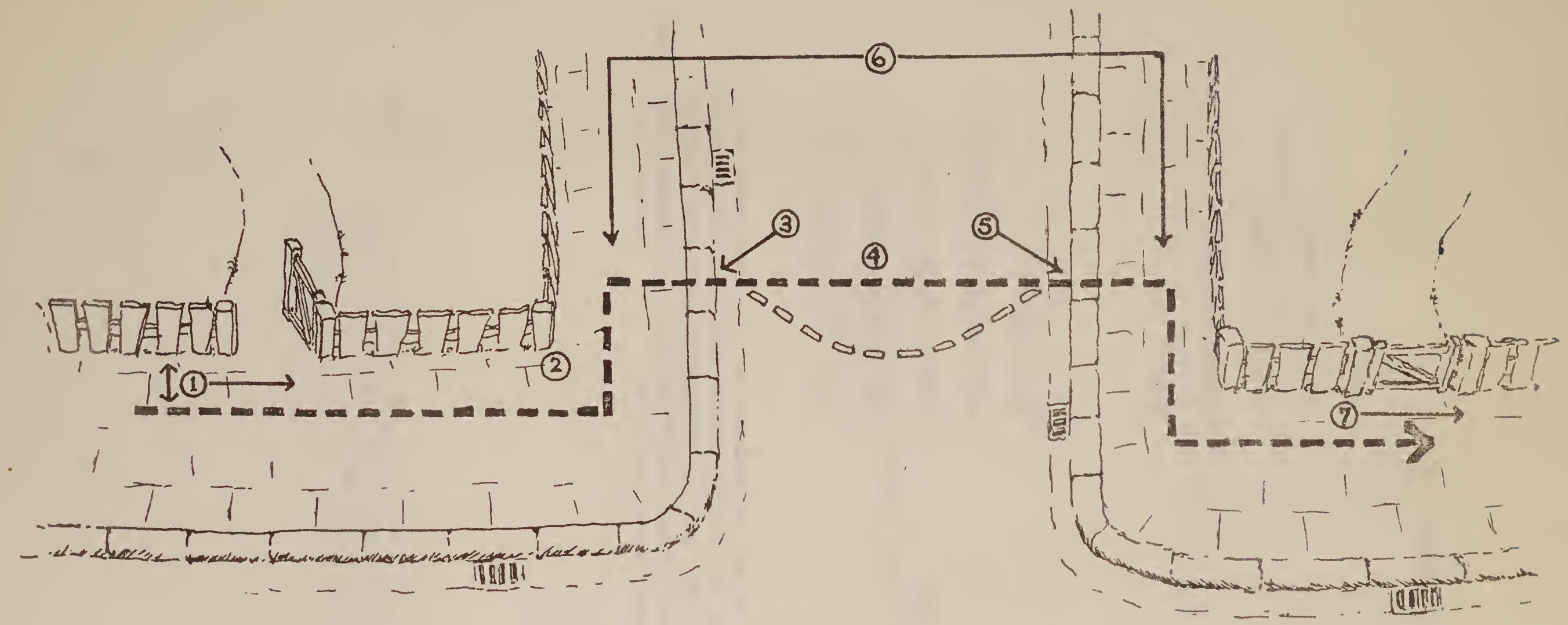
Table 1.

1. Travel straight line midpavement.
2. Detect end of Block.
3. Detect and anticipate downkerb.
4. Cross straight or correct veer.
5. Detect and anticipate upkerb.
6. Make indentation.
7. Pick up true path.

8. Move at speeds equal to sighted.
9. Detect obstacles/landmarks auditorily/tactually.
10. Sense environment auditorily/tactually.
11. Handle effectively sighted help.
12. Handle effectively public transport.

88. Table 2 is a schematic representation of the different levels of complexity of situations in which a blind person may want to move about. This schematic representation is useful when considering a blind person's needs, his attainments, and the progression of training objectives.

Figure 1



Travellers Path

Numbers refer to items in Table 1.

Table 2.

Familiar	Home
	Neighbourhood
	Local Shopping
	Recreational
	Work
Unfamiliar	Any Indoor
	Any Quiet Residential
	Any Shopping Centre
	Any Recreational
	Any Town Centre

89. It is by reference to the two sets of items listed in tables 1 and 2 that one may specify the mobility levels attained by blind people. Additional items are frequency of usage, and time spent travelling per day.

Appendix B.

Addresses for further information.

The Training Administrative Officer,
Guide Dogs for the Blind Association,
83-89, Uxbridge Road,
Ealing,
London, W.5.

The Principal,
National Mobility Centre,
22, Melville Road,
Edgbaston,
Birmingham, 15.

The Secretary,
Mobility of the Blind Association,
Edmondscote Manor,
Warwick New Road,
Leamington Spa,
Warwickshire.

The Director,
Blind Mobility Research Unit,
Department of Psychology,
University of Nottingham,
Nottingham.

NB. The Mobility of the Blind Association have produced a most useful concise booklet on the existing aids to mobility. This is available in print and in braille.

Acknowledgements.

The views expressed in this document are my own and I take full responsibility for them. But they are obviously culled from a good many sources among blind users and practitioners. To them, as always, I would like to express my thanks and to acknowledge my debt. In the preparation of the document I was greatly helped by the three senior members of this Unit, and I would like to express my thanks to them here: Dr. John Armstrong, Mr. Dennys Campbell, and Dr. Tony Heyes.

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